

EXHIBIT A

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

WSOU INVESTMENTS, LLC §
D/B/A BRAZOS LICENSING §
AND DEVELOPMENT, §

Plaintiff, §

V. §

CANON INC., §

Defendant. §
----- §

CANON INC., §

Third-Party Plaintiff, §

V. §

NXP USA, INC., §

Third-Party Defendant. §

CIVIL ACTION NO.:

6:20-cv-00980-ADA

REMOTE ORAL AND VIDEOTAPED DEPOSITION OF
TODOR COOKLEV, Ph.D.
29th day of September, 2021

Job No. 4823393

1 REMOTE ORAL AND VIDEOTAPED DEPOSITION OF
2 TODOR COOKLEV, Ph.D., located in Fort Wayne,
3 Indiana, produced as a witness at the instance of
4 the Defendant and Third-Party Plaintiff, and duly
5 sworn, was taken in the above-styled and numbered
6 cause on the 29th day of September, 2021, from
7 10:04 a.m. to 2:25 p.m., before Daniel J. Skur,
8 Notary Public and Certified Shorthand Reporter in
9 and for the State of Texas, reported by
10 stenographic means from Waxahachie, Texas, pursuant
11 to the Federal Rules of Civil Procedure.

1 R E M O T E A P P E A R A N C E S
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23 ALSO PRESENT: Mr. David Crenshaw, Videographer
24 Ms. Dina Martin

I N D E X

1.	Appearances.....	3
2.	The Witness:TODOR COOKLEV, Ph.D.	
	Examination by Mr. Martinelli.....	8, 100
	Examination by Guhaniyogi.....	97
3.	Acknowledgement.....	105
4.	Reporter's Certificate.....	106

DEPOSITION EXHIBITS
TODOR COOKLEV, Ph.D.
September 29th, 2021

Number	Description	Page
Exhibit A	Exhibit 1 to Waldrop Deposition, '346 Patent 13 pages	10
Exhibit B	Answering Declaration of Todor Cooklev, Ph.D. 67 pages	33
Exhibit C	'346 Example 1 page	48
Exhibit D	'346 Example 1 page	58
Exhibit E	'346 Example 1 page	59
Exhibit F	'346 Example 1 page	64
Exhibit G	Declaration of Dr. Zhi Ding in Support of Canon's Proposed Claim Constructions 29 pages	73
Exhibit H	Random Number 1 page	90

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DEPOSITION EXHIBITS

TODOR COOKLEV, Ph.D.

September 29th, 2021

Exhibit I Exhibit 15 to the Waldrop 92
Deposition, Article: A
Novel Concept: Message
Driven Frequency Hopping
7 pages

P R O C E E D I N G S

REMOTE ORAL DEPOSITION OF

TODOR COOKLEV, Ph.D.

(REPORTER NOTE: This deposition is being conducted remotely in accordance with the Current Emergency Order regarding the COVID-19 State of Disaster.

Today's date is the 29th day of September, 2021. The time is 10:04 a.m. Daylight Savings Time. The witness is located in Fort Wayne, Indiana.)

VIDEOGRAPHER: We're on the record. Today's date is September 29th, 2021. The time is 10:02. This is the video deposition of Todor Cooklev, Ph.D., relative to a case styled WSOU Investments LLC d/b/a Brazos Licensing and Development versus Canon, Inc. This case is filed in the United States District Court for the Western District of Texas, Waco Division. This deposition is being conducted remotely by stenographic and video means. The witness is located at 1336 Sycamore Hills, Fort Wayne, Indiana.

Counsel, at this time, would you please state your appearances for the record, and the reporter can then place the witness under oath.

1 MR. MARTINELLI: All right. I'm Richard
2 Martinelli for Canon, and with me is Weimin Ning.

3 MS. GUHANIYOGI: Jayita Guhaniyogi on
4 behalf of WSOU plaintiff from Kasowitz Benson
5 Torres and on behalf of the witness.

6 TODOR COOKLEV, Ph.D.,
7 having been duly cautioned and sworn to tell the
8 truth, the whole truth and nothing but the truth,
9 testified as follows:

10 (10:04 a.m.)

11 MR. MARTINELLI: Good morning,
12 Dr. Cooklev. Thank you for joining today.

13 MS. GUHANIYOGI: I'm so sorry to
14 interrupt, Mr. Martinelli. I just want to, as an
15 initial matter, just state something on the record
16 really quickly. Just pursuant to the parties'
17 agreements in this case, in view of the limited
18 issues in the declaration -- expert declarations,
19 the parties have agreed that this deposition be
20 conducted for three and a half hours.

21 You can proceed, Mr. Martinelli.

22 MR. MARTINELLI: And we agree to that.
23 Hopefully, we won't even use that much time.

24 EXAMINATION

25 BY MR. MARTINELLI:

1 then -- then, yes, you will have frequency
2 repetitions.

3 Q. So is the idea, for example, if you're
4 looking at eight bursts and you only have four
5 frequencies to use, you need to have repetition to
6 fill those full eight bursts with only four
7 frequencies, right?

8 A. You have -- that's -- that is generally
9 correct, and, again, this is in the context of the
10 GSM system as it existed around the time of the
11 invention. The -- so in that context, if you have
12 eight bursts and only four frequencies, then this
13 is -- you have four frequencies, so there would be
14 repetitions.

15 Q. Do you know the minimum number of
16 repetitions that would occur in that scenario?

17 MS. GUHANIYOGI: Objection, form, calls
18 for speculation.

19 A. Well, I'm not sure what -- whether -- by
20 "minimum number of repetitions" whether you mean
21 one -- how many times would one frequency be used
22 or all of them or an average or something like
23 that. But just if you have -- since you gave that
24 example, in the context of GSM, if we have eight
25 bursts and four frequencies, then, sure, there

1 Q. Uh-huh.

2 A. -- in my paragraph 51?

3 Q. Yes.

4 A. What does the patent specification here
5 mean by repetition of frequencies over the time
6 period T is reduced?

7 Q. Well, let me clarify that. It's really
8 the "thus," and maybe I can ask a better question.
9 How does the first sentence that you quoted
10 starting "in particular" lead to the repetition of
11 frequencies over the time period T being reduced,
12 in your view?

13 A. Excuse me. I was just looking at the
14 prior sentence, so the sentence starting in
15 particular, what?

16 Q. You can read what you have there. So
17 it's: In particular, prior selected frequencies
18 are temporarily prohibited from being selected
19 again from the hopping set. That's the first
20 sentence. Then it goes on: Thus, repetitions of
21 frequencies over the time period T is reduced,
22 right?

23 How does temporary prohibition lead to
24 reduction of frequency repetition?

25 A. Well, I don't think I have a rephrasal

1 for the specification here of the -- what the
2 specification is saying that prior selected
3 frequencies are temporarily prohibited from being
4 selected again, and in this way, repetition of
5 frequencies over the time period T is reduced.

6 Q. Is that statement true for any time
7 period T?

8 MS. GUHANIYOGI: Objection to form,
9 vague.

10 A. I'm -- I'm -- the statement is true, and
11 it is -- what is true is that repetition of
12 frequencies over the time period T is reduced, and
13 that is the time period T that is recited in the --
14 in the claims.

15 BY MR. MARTINELLI:

16 Q. Right. And my understanding is that you
17 construe the time period T to be the period when
18 frequency hopping is occurring; is that right?

19 A. And I will -- yeah, in light of the
20 specification, a POSITA would understand that the
21 time period T, in the context of the claims, is the
22 period of time over which the device transmits
23 signals using frequency hopping.

24 Q. So back to the passage we were looking
25 at in paragraph 51 of your declaration. Is it true

1 Q. Right.

2 A. -- as used in the -- as used in the
3 claims of the '346 patent.

4 Q. Uh-huh.

5 A. But I'm not -- I'm not prepared today to
6 analyze how the '346 patent applied to any
7 frequency hopping system.

8 Q. So that's good because we're not doing
9 any frequency hopping system. We're going to do a
10 very specific example so that I can get to the
11 limitations on the prohibition time period that we
12 were talking about before we took our break. Let
13 me give an example, and you can tell me if my
14 example is good, bad, or indifferent.

15 If I said that the time period T is
16 200 -- I'm going to say hops worth of time, would
17 that be something that's understandable to you?

18 MS. GUHANIYOGI: Objection to form,
19 vague, outside the scope.

20 A. I mean, just 200 hops?

21 BY MR. MARTINELLI:

22 Q. Uh-huh.

23 A. Just 200 hops is -- is something that is
24 understandable.

25 Q. Okay. Good. So we're at the point now

1 where we've defined N. N is 4, right? And we've
2 specified four frequencies f1 through f4, and we've
3 defined T as 200 hops. What I'd like to know is
4 what is the portion of the time period T that a
5 person of skill in the art would apply in this
6 situation to achieve the reduction in frequency
7 repetitions described in the patent?

8 MS. GUHANIYOGI: Objection, form, vague,
9 outside the scope, calls for speculation.

10 (Pause.)

11 A. Okay. I'm beginning to understand here.
12 It's not something that I've analyzed or I've
13 offered an opinion. I mean, this 200 hops, you
14 selected 200 hops, as a -- so what you're asking me
15 what about the portion of time period T?

16 BY MR. MARTINELLI:

17 Q. (Nods head.)

18 A. I mean, let's enter two hops.

19 Q. So the portion of time period T is two
20 hops, and I think I agree with you. This will
21 reduce frequency repetitions compared to doing
22 nothing, right?

23 A. Yes.

24 Q. So I agree with you. So we can actually
25 come over here and say yes.

1 D.

2 (Exhibit Cooklev D introduced.)

3 BY MR. MARTINELLI:

4 Q. And I'm going to remove your portion of
5 time period T as two hops and keep everything else
6 the same. I'm going to delete whether prohibitions
7 of repeats occur. So we still have a time period T
8 of 200 hops. We still have f1 through f4 as the
9 available frequencies to use. That means N equals
10 4. You've given me one choice of a portion of time
11 period T that results in the reduction.

12 What happens if I choose a portion of
13 the time period T to be 199 hops?

14 MS. GUHANIYOGI: Objection to form,
15 vague, calls for speculation, outside the scope.

16 BY MR. MARTINELLI:

17 Q. So before we get into the details on
18 that, 199 hops is smaller than 200 hops, right?

19 A. Well, I agree that 199 is smaller than
20 200.

21 Q. Good. If a selected frequency is then
22 prohibited for 199 hops, over the time period T,
23 will the number of repetitions overall go up
24 compared to -- well, let me ask it a different way
25 to make it simpler.

1 If I choose a portion of time period T
2 that's 199 hops will I achieve the advantage of the
3 patent and reduce the number of hops -- the number
4 of repetitions over the time period T?

5 MS. GUHANIYOGI: Objection to form,
6 vague, outside the scope, calls for speculation.

7 A. Well, I disagree with the assumption in
8 the question. In particular, I disagree that 199
9 hops in this -- in this example that you are trying
10 to construct, 199 hops is an appropriate portion of
11 the time period T. I disagree with this.

12 BY MR. MARTINELLI:

13 Q. Okay. I think you're right. So
14 we'll -- bad example. We'll make a new -- new
15 chart.

16 (Exhibit Cooklev E introduced.)

17 BY MR. MARTINELLI:

18 Q. We'll call it E, and we'll -- what's the
19 largest portion of the time period T -- let me set
20 it up so we have it all the same.

21 This example is the same as the prior
22 example or the original example. We have
23 frequencies available of f1 through f4, which means
24 N equals 4. We have time period T of 200 hops, and
25 what I want to know is what is the longest possible

1 of three hops of prohibition achieve the patent's
2 goal of reducing repeats overall over the time
3 period T?

4 MS. GUHANIYOGI: Objection to form,
5 calls for speculation, outside the scope.

6 A. Again, the complete answer to your
7 question is -- would require more information. The
8 complete answer one -- a person of skill in the art
9 would take a concrete wireless system and will
10 understand -- then it will understand the
11 repetition, what does it mean to -- and since here
12 we are constructing -- it's a hypothetical example,
13 and it is incomplete because -- because there will
14 be a number of other details and assumptions that
15 will be made in the context of a concrete system.

16 So subject to this, I mean, we just --
17 we just went over when the portions of time period
18 is two hops, now if it's three hops, and subject to
19 this, generally it seems to me that, yes, that
20 there would be a benefit of -- that the -- this
21 particular benefit of the '346 patent would be
22 achieved.

23 BY MR. MARTINELLI:

24 Q. I agree with you again. Can you tell me
25 why the benefit would be achieved if the portion of

1 calls for speculation.

2 A. A person of skill in the art would know
3 what the scope of a portion of time period T is
4 when evaluating a particular system.

5 BY MR. MARTINELLI:

6 Q. Can you place any parameters on the
7 portion of time period T that would allow you to
8 achieve the advantages of the invention today?

9 MS. GUHANIYOGI: Objection to form.

10 BY MR. MARTINELLI:

11 Q. Let me -- I'll rephrase it.

12 Sitting here today, can you articulate
13 any limitations on the portion of time period T
14 that would allow a person of ordinary skill in the
15 art to achieve the advantages of the invention?

16 MS. GUHANIYOGI: Objection to form,
17 calls for speculation.

18 A. I have not performed this analysis yet
19 and have not formed an opinion about that.

20 BY MR. MARTINELLI:

21 Q. Is it your testimony that a person of
22 skill in the art can't know the scope of the
23 portion of time period T unless they build an
24 infringing system first?

25 MS. GUHANIYOGI: Objection to form,

1 mischaracterizes testimony.

2 A. Well, you said "unless they build an
3 infringing system first"?

4 BY MR. MARTINELLI:

5 Q. I'll rephrase.

6 A. I mean, I understand the question
7 that -- I think a person of skill in the art would
8 know the scope of the portion of time period T in
9 the context of a specific system. They don't have
10 to build it, but it has to be in the context of a
11 specific system, just not in a vacuum.

12 Q. What would a person of skill in the art
13 need to know about the context of a specific system
14 to be able to understand the scope of a portion of
15 time period T?

16 MS. GUHANIYOGI: Objection to form.

17 A. Well, and I think we're starting to get
18 into the -- getting into an analysis of a specific
19 system, and I have not performed this analysis, and
20 I can't list all of the parameters that are
21 necessary for a person of skill in the art to know
22 in -- in making this analysis right now.

23 BY MR. MARTINELLI:

24 Q. Do you know whether Dr. Ding has
25 performed that analysis?

1 selection in at least a portion of the time period
2 T.

3 Did I read that out of claim 1?

4 A. Yes.

5 Q. So some of the frequencies in N are
6 required to be prohibited during at least a portion
7 of T according to claim 1, right?

8 A. At least one is required.

9 Q. So then wouldn't a person of skill in
10 the art need to know whether N can change during
11 the time period T?

12 MS. GUHANIYOGI: Objection to form.

13 A. Maybe there is a need for that. It's --
14 it's just I have not made that analysis yet.

15 BY MR. MARTINELLI:

16 Q. Okay. Thank you.

17 MR. MARTINELLI: Okay. Weimin, what
18 exhibit are we up to?

19 MS. NING: We are at G.

20 (Interruption by the reporter.)

21 MR. MARTINELLI: Next one will be H.
22 I'm mark as H --

23 MS. NING: Right.

24 MR. MARTINELLI: -- an exhibit which I'm
25 going to show on the screen right now. It's in

1 your packet, Dr. Cooklev. It's a big long number.

2 (Exhibit Cooklev H introduced.)

3 A. It's in the --

4 BY MR. MARTINELLI:

5 Q. It's in the smaller packet. It was
6 behind the --

7 A. Oh, okay. Yes, I see this in the last
8 sheet of paper, yes.

9 Q. Does that number appear patternless to
10 you?

11 MS. GUHANIYOGI: Objection, form, calls
12 for speculation, outside the scope.

13 A. Not exactly.

14 BY MR. MARTINELLI:

15 Q. Why not?

16 A. Well, there is a -- the digit 08264 and
17 the next five digits are like a mirror image,
18 46280, and then there are what -- there are some,
19 like, six digits now 991735, and then -- and then a
20 mirror image, 53719, so in this sense, you know, in
21 a certain sense, it's not patternless, and I think
22 I answered the question in what sense.

23 Q. Numbers are cool. So from just looking
24 at this number, can you tell whether it was
25 generated by a -- by a pseudo-random selection or

1 not?

2 MS. GUHANIYOGI: Objection to form.

3 A. Well, I can't now -- there are numerous
4 pseudo-random number generators. Pseudo-random --
5 as I said, pseudo-random number generators are
6 known, a number of them are known, and some of them
7 were known at the time of the invention.

8 BY MR. MARTINELLI:

9 Q. How many numbers do you need to look at
10 before you can decide whether a pseudo-random
11 selection appears to be patternless?

12 MS. GUHANIYOGI: Objection to form,
13 vague.

14 A. I don't know.

15 BY MR. MARTINELLI:

16 Q. How would someone apply your
17 construction of the term "pseudo-randomly appears
18 to be patternless" to be able to determine whether
19 a selection is pseudo-random or not?

20 A. Well, one could look at the algorithm
21 that is producing these digits --

22 Q. And --

23 A. -- and decide if that algorithm is
24 pseudo-random.

25 Q. And what would they look for in the

1 algorithm to decide if it's pseudo-random?

2 A. Well, they would look at the algorithm
3 overall.

4 Q. Okay. All right. So at paragraph 89,
5 you say that Dr. Ding has an article in which he
6 uses variables close to a time period T; is that
7 right?

8 A. Generally that's what I say there, yes.

9 Q. And how does Dr. Ding use those
10 variables in the article you're referring to here?

11 A. Well, generally, as articles are
12 written. This is an example --

13 Q. Uh-huh.

14 A. -- that I provide in this paragraph, so
15 Dr. Ding describes the symbol period, the hop
16 duration, --

17 Q. Uh-huh.

18 A. -- so he's describing these variables.

19 Q. Okay. Now, I'm going to mark as --
20 well, I guess you have the quote right here, but
21 I'll mark it anyway. I'm going to mark as Exhibit
22 I the Ding article that's being discussed.

23 (Exhibit Cooklev I introduced.)

24 BY MR. MARTINELLI:

25 Q. Is this the article you were referring